THE GENUS *TERMITOMYCES* FROM MADHYA PRADESH

H.S. Chaubey,* Sanjeev Kumar and Y.P.Sharma****

**School of Studies in Botany, Jiwaji University, Gwalior (M.P.)*
***Department of Botany, University of Jammu, Jammu 180006*
*E.mail:*ohm_mushroom2005@yahoomail.com,
sanjeevkoul222@gmail.com

Abstract: Genus *Termitomyces* includes three species namely *T. hemii, T. indicus* and *T. microcarpus* have been described and illustrated from various locations of Gwalior Division of Madhaya Pradesh. Their habitat description, macro and microscopic details and edibility status have also been incorporated in the present study.

Key words: Gwalior Division,*Termitomyces*,.

INTRODUCTION

The genus *Termitomyces* is a genus of termitophilous fungi living symbiotically in termite nests with species of the Macrotermitinae (Heim, 1977; Batra & Batra, 1979). All species of the genus are both nutritious and regarded as delicious (Oso, 1975; Parent & Thoen, 1977; Purkayasthaya & Chandra, 1985), and have been used for human consumption for many years in many countries (Sangvichien & Tylor-Hawksworth, 2001). Earlier, the genus *Termitomyces* has been placed in *Tricholomataceae* (Kirk *et al*., 2001). Currently, the genus comprises of 71 taxa and is placed in the family Lyophyllaceae (Index Fungorum, 2008 and Kirk, *et al.*, 2008). In India, 16 species of *Termitomyces* have been reported so far (Jamaluddin *et al*., 2004).

In an ongoing exploration of wild mushrooms in various locations of Gwalior Division of Madhya Pardesh from 2007-2009. The authors have collected number of species belonging to genus *Termitomyces*. The present communication deals with three species namely *T. hemii, T. indicus* and *T. microcarpus.* All these species are edible and widely consumed by local inhabitants of the study area. Critical microscopic observations and perusal of literature revealed that *T. indicus* and *T. hemii* are new additions to the macrofungal flora of Madhya Pradesh and remaining constitute first authentic report from Gwalior Division (Bilgrami *et al.*, 1991 and Jamaluddin *et al*., 2004).

MATERIALS AND METHODS

Standard methods were followed for collection, preservation and identification has been followed (Smith, 1949; Arora, 1986; Pegler, 1986; Singer, 1986; Pegler and Spooner, 1996 and Atri, *et al.*, 2003). Photographs were taken in natural habitat, using digital camera (Sony DSC-P92). Measurements were taken with the previously calibrated ocular micrometer and illustrations were made with the aid of camera lucida (Erma, Japan).Reagents used during microscopic analysis were 3% KOH, lactophenol, cotton blue and 1% Congo red. The specimens were preserved in the herbarium of Mycology and Plant Pathology Laboratory, School of Studies in Botany, Jiwaji University, Gwalior (M.P.).

1) *Termitomyces indicus* Natarajan *Kavaka* 3: 63-66 (1975)

Fructification: 3-4 cm in size, Pileus : 3.0 – 3.5 diameter; convex becoming planoconvex, with a spiniform perforation, surface white becoming yellowish white to cream coloured, smooth, radially shredded when mature; margin epicutis, consisting of radially arranged repent hyphae; **Context:** seperable from the epicutis, fleshy, white, consisting of thin walled interwoven hyphae; **Gills:** free, pink, broad, moderately crowded; **Stipe:** up to 3 cm long, uniformaly thick, glabrous, white cylindric, solid and without annulus, pseudorhiza absent; **Hymenophoral trama:** regular, consisting of parallel thin walled hyphae; Both cheilocystidia and pleurocystidia absent; **Basidiospores:** 7-8 x 4.5 µm, ellipsoid, smooth, hyaline, non-amyloid, clamp connection absent.

Remarks: Earlier reported on ground from Madras (Natarajan, 1975).

Collection Examined: Growing solitary on ground on termite mound during rainy season, Shivpuri, Dabra, Narwar, Guna and Ashok Nagar, Gwalior Division, Madhaya Pradesh, H.S. Chaubey and S. Kumar (2008, 2009), JUG-001, Mycology and Plant Pathology Laboratory, School of Studies in Botany, Jiwaji University, Gwalior (M.P.), Plate-1a.

PLATE -1

a- ***Termitomyces indicus***
b- ***Termitomyces hemil***
c- ***Termitomyces microcarpus***

2) *Termitomyces hemii* Natarajan, *Mycologia* 7: 853 (1979)

Fructification: 15-20 cm long; Pileus : 3-5 cm in diameter and extends upto 10 cms on full maturity, plane to convex with prominent umbo, white, umbo brown to light brown, margin inflexed to incised, surface smooth, viscid when moist; Gills: crowded, free, white, margin serrulate, brittle; Stipe : 12-18 cm long, 0.7-2.0 cm wide, cylindrical, tapering downward, white to creamish white, solid fleshy, annulate, pseudorhiza long; Annulus: single layered, thick, white, superior, broad; Basidiospores: 6-8 x 4-6 µm ovate to ellipsoidal, whitish to pinkish or white to grey inamyloid; Basidia: 30-36 x 8-10 µm, claviform, 4 spored, sterigmata upto 4 µm long; Pleurocystidia: 38-42 x 8-10 µm, clavate and hyaline; Cheilocystidia: 30-36 x 6-8 µm long occasionally present, hyaline; Pileus cuticle: filamentous, 6-8 µm thick, hyaline, septate, interwoven, cramp connection present; Hymenophoral trama: sub regular, divergent, hyaline hyphae, septate, clamp connection present; Stipe cuticle: filamentous, regularly arranged, 6-8 µm thick, septate hyaline, cramp connection present.

Collection Examined: Termiophilous, solitary and gregarious, growing on the termite nests, entire forest ranges of Gwalior Division, Madhaya Pradesh, H.S. Chaubey and S. Kumar (2008, 2009), JUG-002, Mycology and Plant Pathology Laboratory, School of Studies in Botany, Jiwaji University, Gwalior (M.P.), Plate-1b.

3) *Termitomyces microcarpus* (Berk. & Br.) Heim *Mem. Acad. Sci. Inst. Fr.* 64 : 72 (1941)

Fructification: upto 3.5 cm in height, Pileus: upto 1.5 cms in diameter, convex with depressed centre, surface dry, white, margin irregular, inrolled, flesh white, unchanging, taste mild; Gills: free, narrow, unequal soft, edges serrate, white to cream; Stipe: 2-3 cm long, 0.1 – 0.3 cms wide, white, surface dry, central, glabrous, swollen at the base, pseudorluza absent; Basidiospores: 6-8 x 4-6 µm, ovate, elliptical, smooth pinkish, white to yellowish, inamyloid; Basidia: 20-28 x 4-6 µm, clavate, 4 spored, sterigmata upto 3.0 µm long; Pleurocystidia: not observed; Cheilocystidia: 28-30 x 6-8 µm, clavate, hyaline; Pileus cuticle: 4-6 µm thick, filamentous, interwoven; Hymenophoral trama: irregular; Stipe cuticle: parallel arranged, 4-6 µm thick, hyaline.

Remarks: This species has been earlier reported on termite nests, soil and ground from Bengal, Maharashtra and West Bengal (Ramakrishnan and Subramanian, 1952; Chakravarty and Khatua, 1979; Patil, *et al*., 1979).

Collection Examined: Termitophilous**,** solitary and gregarious, growing on decomposed dung during rainy season, distributed around the forest localities of Shivpuri, Guna, Ashok Nagar and Narwar, Gwalior Division, Madhaya Pradesh, H.S. Chaubey and S. Kumar (2008, 2009), JUG-003, Mycology and Plant Pathology Laboratory, School of Studies in Botany, Jiwaji University, Gwalior (M.P.), Plate-1c.

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